

3. *South African Rhagionidae (Diptera) in the South African Museum.*

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THE scarcity of the family *Rhagionidae* (= *Leptidae*), taken in its narrowest sense (that is, after the exclusion of the *Hilarimorphinae*, of the *Xylophaginae*, and of the *Coenomyiinae*), is one of the most striking features of the Ethiopian Dipterous Fauna. From more than 300 species known from all parts of the world only the following are recorded from the Ethiopian region :—

1. *Leptynoma sericeum*, Westwood, 1876, Damaraland.
2. *Lampromyia argentata*, Bigot, 1885, Cape.
3. *Atherix binominata*, Bequaert, 1921 (= *longipes*, Loew, 1863, nec Bellardi, 1861), Bloemfontein.
4. *Atherix braunsi*, Bequaert, 1921, Stellenbosch.
5. *Atherix disciclara*, Speiser, 1914, Cameroon.
6. *Chrysopilus fulvidus*, Bigot, 1891, Assinia.
7. *Chrysopilus testaceus*, Loew, 1858, Caffraria.
8. *Chrysopilus cricosphaerota*, Speiser, 1914, Cameroon.
9. *Chrysopilus obscuripes*, Speiser, 1923, East Central Africa.

Very singular also is the complete absence of *Rhagio* (= *Leptis*), the typical genus of the family. On the other hand, the abundance of the genus *Atherix* (+ *Atrichops*), both in species and individuals, is very characteristic. Out of 30 species of *Rhagionidae* in the South African Museum, 20 (that is 66·6 per cent.) belong to that genus.

The importance of the family is great even from an economic point of view, because it contains some blood-sucking kinds. One of these is present in the collection, and is described here for the first time as belonging to the Australian genus *Atherimorpha*. Others, like the species of *Atherix*, are unique in habits, the females congregating in dense clusters for oviposition, after which the young larvae feed first on the cluster of dead bodies before reaching the water.

The African genera may be distinguished as follows :—

1. (2) Front tibiae with a strong spur at end; face flat, narrow, and elongate, the antennae being inserted above the middle of the eyes; proboscis longer than the head and often very elongate, directed downwards; front tarsi without tactile hairs; wings cuneate at base, with the alula linear and provided with a prominent basal tooth; cubital fork short and broad; calypters much reduced (subfam. *Vermileoninae*). *Lampromyia*, Macq.

2. (1) Front tibiae without spur; face broad, short, and with sockets, the antennae being inserted below the middle of the eyes; proboscis shorter than the head and often very short if elongate, directed forward; front tarsi often with tactile hairs below; wings not cun-
eate, with rounded alula, and with long and narrow cubital fork;
calypters well developed.
- A. (B) Proboscis shorter than the head, antennal style not annulated.
3. (12) Hind tibiae with two spurs at end; eyes not bisected (subfam.
Rhagioninae).
4. (9) Third antennal joint reniform, with dorsal arista; antennae inserted
very low; wings with closed anal cell and with a short second longi-
tudinal vein, which ends very close to the end of the first vein.
5. (6) Sides of face quite bare in both sexes; frons bare or only with a few
scattered hairs; eyes of male contiguous for a great length, with the
anterior areolets distinctly enlarged; frons of female very narrow;
palpi with short and scarce hairs; pleurae nearly bare *Atrichops*, Verr.
6. (5) Frons and sides of face more or less densely but always hairy; eyes of
male with equal areolets, more or less broadly separated; frons of
female broad; palpi densely hairy; pleurae more hairy.
7. (8) Eyes of male somewhat contiguous; legs not specially inflated, with
simple hind praetarsi; hind tibiae with long spurs . . . *Atherix*, Meig.
8. (7) Eyes of male broadly separated; legs much thickened, with dentate
praetarsi and with small spurs on the hind tibiae; hypopygium much
inflated and pendulous . . . *Pachybates*, gen. nov.
9. (4) Third antennal joint not reniform, with terminal arista; wings with
typically open anal cell and with long second vein.
10. (11) Third antennal joint rather elongate and gradually drawn out into a
thickened arista; tibiae with three rows of distinct spicules; second
longitudinal vein ending at a considerable distance from the first; frons
equally broad in both sexes . . . *Atherimorpha*, White.
11. (10) Third antennal joint short and with a thin, hair-like arista; tibiae with
no differentiated spicules; second vein ending close to the end of the
first; eyes of male connected or very narrowly separated. Not found
as yet in the Ethiopian Region . . . *Rhagio*, Fabr.
12. (3) Hind tibiae with only one terminal spur; eyes bisected; second longi-
tudinal vein short, curved upwards at end, and thus very close to the
end of the first vein (subfam. *Chrysopilinae*) . . . *Chrysopilus*, Macq.
- B. (A) Proboscis longer than the head and directed obliquely forward; third
antennal joint forming an 8-annulated complex; eyes bisected; hind
tibiae with two spurs (*Arthrotelinae*) . . . *Arthroteles*, gen. nov.

SUBFAMILY VERMILEONINAE.

Gen. LAMPROMYIA, Macquart, 1835.

This genus is distinguished from the typical genus *Vermileo*, Macquart in having a long proboscis and a non-pulvilliform empodium. The genus *Leptynoma*, Westwood, 1876 (originally described from South Africa as belonging to the Asilidae, like the European genus *Apogon*,

Perris=*Vermileo*), is certainly synonymous with it. The Mediterranean species, like *L. cylindrica* and *pallida*, differ only in having the face more produced below and forwards.

These flies are very interesting on account of the singular habits of their larvae which live in the sand like those of the ant-lions, being, however, very different in the shape of the body.

Of the forms described below, *L. sericea* and *argentata* are probably one species, while *brevirostris* is very different from the others on account of its strong and relatively short proboscis. They are as follows:—

- 1 (6) Proboscis thin and longer than one-half of the body; third antennal joint short and with a thin arista; front tibiae with small and less distinct terminal spur; thorax with a broad, blackish median stripe; abdomen entirely yellowish, clothed with silvery dust, and having a deeply punctate area at the base of each segment.
2. (5) Upper branch of cubital fork S-shaped, curved above at end and set obliquely or even almost perpendicularly; thoracic median stripe deep black.
3. (4) Third antennal joint blackish; lateral dark stripes of back of mesonotum broad; second longitudinal vein with a rounded bend, and not appendiculate; upper branch of cubital fork oblique, ending not much before the wing-tip; fourth posterior cell open; first posterior cell narrow *sericea*, Westw.
4. (3) Third antennal joint pale yellowish; lateral dark stripes narrow; second vein angularly bent and there provided with an appendix; upper branch rather perpendicular and ending much before the wing-tip; fourth posterior cell closed and provided with a long stalk; first posterior cell broad *appendiculata*, sp. nov.
5. (2) Upper branch of the cubital fork rather straight and set almost horizontally, ending near wing-tip; thoracic middle stripe reddish-brown; antennae entirely pale yellowish; bend of second vein rounded and not appendiculate; fourth posterior cell closed at wing-border; first posterior cell narrow; all the veins yellowish *argentata*, Big.
6. (1) Proboscis rather thick and only a little longer than the head; third antennal joint elongate, with thickened arista; front tibiae with a long and strong terminal spur; thorax with three narrow black stripes in front; pleurae black-spotted; abdomen with black bands and black end, without silvery dust and without punctate basal area on each segment; hind legs black, with white rings; wings with oblique upper branch of cubital fork and with the first posterior cell broadening outwardly *brevirostris*, sp. nov.

1. *Lampromyia sericea*, Westwood.

Trans. Ent. Soc. London, 1876, p. 517, pl. vi, fig. 7 (*Leptynoma*).

Described from Damaraland. In the South African Museum there is a male specimen from Matroosberg, 3500 ft., Ceres Div.,

November 1917 (R. M. Lightfoot), which may be considered as belonging to the present species. As Westwood's original description consists only of a few words a full description is necessary.

♂. Length of body, 13 mm. ; of wing, 10 mm. ; of proboscis, 6 mm. Occiput black, densely clothed with opaque grey dust, with pale yellowish hairs, and with a row of yellowish thin cilia at eyes-border, these cilia becoming longer below. Frons parallel-sided, narrow, being not broader than the distance between the basal ocelli ; it is black and quite bare, with a little dark grey dust in front ; the ocelli are of large size, placed on a prominent tubercle, which, however, is not visible in profile, the frons being concave at the vertex. Eyes bare, with the upper areolets not distinctly enlarged ; they are of large size, ovate, their vertical diameter being about twice as long as the horizontal one ; in profile they form almost the whole head, the face only being prominent. Face in the middle twice as broad as the frons, convex and rather prominent, but not with sockets, more produced below than the lower corner of the eyes ; it is densely clothed with white dust and almost bare, having only a few thin white hairs below on the sides. Antennae inserted a little above the middle of the eyes, close to each other at base ; they are carried obliquely above and are about as long as the horizontal diameter of the eyes ; the two basal joints are yellowish, the first being twice as long as the rather globular second, both with a few very short hairs below, and bare above ; third joint black, shortly conical, shorter than the first joint ; arista terminal, black, bare, distinctly shorter than the whole antenna. Palpi blackish at end, yellowish at base, curved upwards ; proboscis black, reddish above at base, long and thin, reaching nearly the hind border of the third abdominal segment. Thorax short and convex, nearly bare, with very short pubescence in front ; on the back it is reddish, with a silky sheen ; the middle stripe is broad, black with reddish-brown sheen, complete in front but abbreviated behind ; the sides of this stripe are shiny white ; above the notopleural line there is a broad reddish-brown stripe on each side, interrupted at the suture. Humeral calli prominent, reddish-sericeous, with a brown stripe below. Pleurae quite bare, dark reddish, with sericeous sheen. Scutellum small, semicircular, flat above, quite bare, reddish, with a broad blackish middle stripe which does not reach the hind border. Mesophragma convex, reddish, shiny below, clothed with greyish dust on the upper half. Halteres with yellowish stalk and blackish knob, long and thick ; calypters very small, yellowish, bare at border. Abdomen very

elongate, about four times as long as the thorax ; it is nearly parallel-sided, being only a little narrowed towards the base, and rather flat ; there are eight visible segments, the first and the last shorter, all the others being of about the same length ; each segment has a semi-circular area at base with two rows of deep puncti ; it is quite bare, even at base, with a very short, thin, white pubescence at sides near the end ; entirely reddish, with no distinct dark markings, and entirely clothed with dense silvery dust ; venter entirely reddish, unspotted, but without silvery dust. Male genitalia erect, reddish, with short whitish pubescence. Legs of the two anterior pairs thin and short, entirely yellowish, unspotted, with the tarsi blackened at end ; legs of hind pair much longer and thicker, reddish, with the femora, tibiae, and tarsi fuscous at end, the praetarsi distinctly swollen and as long as the other joints taken together ; pubescence very short ; the two terminal spurs of the four posterior tibiae are long, strong, and yellowish ; claws black, with narrow reddish base. Wings shorter than the body, rather narrow, cuneate at base, without prominent alula ; at the extreme base of the wing, at the root of the linear alula, there is a prominent tooth. First vein ending beyond the middle of the wing ; praefurca long ; second vein broadly rounded at end ; cubital fork proportionally short and broad, with the upper branch rather S-shaped but less oblique, ending at a short distance from the wing-tip ; discal cross-vein before the middle of the discoidal cell ; first posterior cell broadly open at end ; third posterior cell at end as broad as the two preceding cells together ; fourth posterior cell and anal cell narrowly open. Axillary lobe long and narrow. Costa becoming thinner after the tip of the wing, but the ambient vein complete. The wings are greyish hyaline, iridescent. There are fuscous spots on the praefurca, below the stigma, forming a dark band in the narrowed median part of the marginal cell ; the last portion of the second vein, after the bend, is edged with fuscous. The veins are yellowish at base and darkened in the distal part.

2. *Lampromyia appendiculata*, sp. nov.

Closely allied to the preceding, and possibly only a variety of it, but distinct in some important peculiarities of wing-venation.

Type ♂, from Ceres Div., Matroosberg, 4500 ft., November 1914 (R. M. Lightfoot).

♂. Length of body, 14 mm. ; of wing, 9.5 mm. ; of proboscis, 6.5 mm. Head and its appendages as in the preceding, but the antennae

and the palpi entirely yellowish ; the ground colour of the face below the white dust is distinctly reddish ; the proboscis is a little longer. Thorax and scutellum as in the preceding species, but there are no dark lateral stripes above the notopleural line, only a narrow, reddish-brown post-sutural stripe being present above the root of the wings. Pleurae of a lighter reddish colour. Calypters and halteres as in the preceding. Abdomen as in the preceding species, but more distinctly narrowed towards the base ; venter with a dark stripe in the middle towards the end ; male genitalia shorter, the upper lamella being truncate at end. Legs as in the preceding species, but distinctly lighter, even those of the hind pair being more yellowish than reddish. Wing-pattern also as in the preceding species, but even the upper branch of the cubital fork is edged with fuscous. Origin of the second vein much nearer the discal cross-vein which is placed much before the middle of the discoidal cell ; terminal part of the second vein bent at a right angle, and there strongly stumpy ; upper branch of the cubital fork S-shaped and placed about perpendicularly, ending much before the wing-tip ; first posterior cell as broadly open as the second ; fourth posterior cell with a long stalk. All the veins of the terminal part of the wing are distinctly thicker and blacker than in the preceding species.

3. *Lampromyia argentata*, Bigot.

Ann. Soc. Ent. Fr. (6), v, Bull., p. 68 (1885).

Possibly only a form of *L. sericea*, distinguished by the paler coloration and by some particularities of wing-venation.

I have seen Bigot's type, a male specimen from Hex River, 10th January 1883. Head as in *L. sericea*, but the occiput and the frons more densely white dusted ; antennae with the third joint quite reddish ; palpi of a paler reddish colour. The thorax is much paler, with the broad middle stripe very light reddish brown. Abdomen and legs as in *L. sericea*, but distinctly paler ; the male genitalia are apparently the same. Wings equal in shape and nervation, but distinctly more yellowish and with paler veins ; second longitudinal vein similarly shaped ; upper branch of cubital fork straighter and placed more horizontally, thus ending nearer to the wing-tip ; first posterior cell narrower ; fourth posterior cell closed or even shortly stalked ; anal cell more narrowly open.

4. *Lampromyia brevirostris*, sp. nov.

Very distinct from all the preceding forms on account of its short and strong proboscis, of the long spur on the front tibiae (agreeing in this character with the Mediterranean typical species), and of the very different abdomen, which is moreover quite devoid of silvery dust.

Type ♂, from Zululand (M'fongosi), March 1917 (W. E. Jones); the ♀ type is without precise locality, but bears the following label: "bred by Rev. N. Abraham from a larva kept for 2 years in captivity, April 1920"; an additional ♂ from East London, 25/12/1923 (H. K. Munro).

♂ ♀. Length of body, 11–12 mm.; of wing, 9–10 mm.; of proboscis, about 2 mm. Occiput black, dark grey dusted, with pale hairs near the eyes-border, longer and more abundant underneath. Eyes more rounded than in the preceding species, their horizontal diameter being about as long as the vertical one. Frons black, grey dusted, broader in the male than the distance between the basal ocelli; twice as broad in the female. Face pale yellowish, white dusted, clothed with scarce, thin, whitish pubescence; in the male it is less produced than in the other species. Antennae distinctly longer than in the preceding species, chiefly because the third joint is elongate, being longer than the first joint and longer than the thickened terminal style; they are yellowish, more or less infuscated, with the third joint fuscous at end. Palpi blackish. Proboscis short and strong, only a little longer than the vertical diameter of the head; it is black below and at end, red above near the base. Thorax reddish, a little shiny, with bronze tomentum; on the back there are three black stripes, the middle one dilated behind the suture and prolonged across the middle of the scutellum; the lateral ones are distinct only behind the suture, being represented in front of the suture only by a short, blacker stripe. Pleurae shiny reddish, with broad black spots on meso-, ptero-, and sterno-pleura; they are quite bare, while the back of the mesonotum bears a short darkish pubescence. Scutellum small, rounded, flat above, reddish with a black median stripe and with short dark pubescence; mesophragma shining reddish, grey dusted above, with blackish lateral spots in the female. Calypters bare, very narrow, conical, dirty yellowish. Halteres with yellowish stalk and black knob. Abdomen distinctly stalked in the male, the second, third, and fourth segments being cylindrical and narrower than the others, while in the female this is not the case. Both sexes

are entirely without silvery dust, and there are no punctate basal areas of the segments, as in the Mediterranean species; it is shiny reddish, with black spots at the hind border of the segments and at the sides, in the male the three last segments being entirely black above; venter reddish in both sexes; pubescence short and blackish; male genitalia black above and reddish below. Front coxae yellowish, unspotted; middle and hind coxae reddish and black spotted at end. The four anterior legs are entirely pale yellowish, with only the last tarsal joints black; hind legs stronger and longer, with club-shaped femora and tibiae, the femora yellowish, broadly black before the end, the tibiae black, with narrowly whitish base; hind tarsi black; the praetarsi with a whitish base; front tibiae with a strong and long yellowish spur, like that of the Mediterranean species. Wings of the usual shape, proportionately short and narrow; they are greyish hyaline, iridescent, with irregular dark spots at the praefurca, at the small cross-vein, in the middle of the marginal cell, and at the wing-tip; some veins are moreover edged with fuscous. Second vein regularly bent and not appendiculate (but in one specimen angular and appendiculate); upper branch of cubital fork less sinuous, but oblique and ending considerably before the wing-tip; small cross-vein placed near the base of the discoidal cell; first posterior cell broadening towards the end and there broader than the second, fourth posterior cell narrowly open (♀), or closed and stalked (♂); anal cell narrowly open or closed at the wing-border.

SUBFAMILY RHAGIONINAE.

Gen. ATRICHOPS, Verrall, 1909.

The species of the present genus are distinguished, in addition to the characters given in the table, by the more elongate and more bare body, and by the prevailing red colour of body, legs, and antennae. Practically, the red antennae and red palpi are sufficient to separate them from any South African species of *Atherix* or of *Pachybates*. But in the Oriental Fauna there are species with black body, and with black antennae and legs, showing, moreover, some scattered hairs on the frons of the female. I have seen also a black, as yet undescribed, species from the Congo. This last species, like *A. disciclara*, Speiser, 1914, shows a deep longitudinal median furrow on the fore part of the frons.

It is possible that the genus *Suragina*, Walker, 1860, is the same as the present one; and if so, its name must be used for the species now

included in *Atrichops*. They are, however, hardly separated from *Atherix*.

The South African species known to me are as follows :—

1. (10) Back of mesonotum reddish, with or without a more or less broad black stripe in the middle ; antennae entirely reddish.
2. (3) Back of mesonotum entirely reddish, without median stripe and without presutural spots ; abdomen quite reddish, without black markings
agramma, var. nov.
3. (2) Back of mesonotum with black stripe, or entirely black in the middle.
4. (9) Middle black stripe of mesonotum narrow, not extending beyond the dorsocentral lines, which are never whitish striped ; a blackish presutural spot on notopleural depression ; eyes more oval and frons longer.
5. (8) Pleurae entirely reddish, with a blackish spot at upper border of mesopleura ; face yellowish ; hind femora entirely yellowish.
6. (7) Abdomen entirely reddish, even on venter, with a narrow and short black basal stripe *monogramma*, sp. nov.
7. (6) Abdomen with black venter and with broader black markings above.
inaequalis, sp. nov. ♀
8. (5) Pleurae almost entirely black, being reddish only on the propleural region ; face black ; hind femora with a broad blackish ring in the middle
inaequalis, sp. nov. ♂
9. (4) Middle black stripe broad, extending beyond the dorsocentral lines which are marked by whitish narrow stripes ; no blackish presutural spots ; face black ; eyes distinctly more rounded and frons shorter.
bivittata, sp. nov.
10. (1) Back of mesonotum and pleurae entirely black, with a narrow reddish notopleural stripe ; face black ; basal joints of antennae fuscous above ; intermediate segments of the abdomen with complete black basal bands *binominata*, Beq.

5. *Atrichops monogramma*, sp. nov.

An almost entirely reddish species, distinguished from all the others on account of the peculiar coloration of the pleurae.

Type ♀, a single specimen from M'fongosi, Zululand, December 1916 (W. E. Jones).

♀. Length of body about 10 mm. ; of wing, 9 mm. Occiput entirely deep black, with white shining dust at the side and along the middle of the eyes-border ; behind the vertex there are short yellowish hairs, while on the lower part the hairs are long and white. Frons long and proportionately narrow for a female, the width being one-third of that of one eye, gradually broadening a little forwards ; it is deep black in the middle with a white sheen from the vertex to the ocelli, and on the lower third above the antennae. Eyes broadly oval, apparently unicolourous, with equally small areolets. Antennae

inserted much below the middle of the eyes; they are entirely reddish, with a white sheen on the basal joints; the third joint is reniform, its vertical diameter being as long as the two basal joints together; first and second joint with some black hairs above; arista thin, blackish. Face very short, measuring only one-third of the length of the frons; it is shiny yellowish, faintly grey dusted in the middle; the cheeks are white shiny and quite bare. Palpi long, reddish, with some pale hairs; proboscis about as long as the head, entirely reddish, with pale hairs below. Thorax entirely reddish, with more yellowish humeri and paler pleurae; on the back it is rather shiny, with a short black pubescence, longer and more bristly on the notopleural depression; the black middle stripe is entire and equally narrow, not extending laterally beyond the dorsocentral lines, acute at the beginning above the neck and a little dilated at the end in front of the scutellum. The pleurae are opaque, with a broad, shiny* white band across the sterno- and meso-pleura; the upper part of this band, on the upper part of the mesopleura, shows a blackish ground-colour and is continued in a spot on the sides of the back, above the notopleural line and in front of the suture; mesopleura with soft white hairs; metapleura shining white with soft white hairs; mesophragma shining black in the middle. Scutellum reddish, shining, with narrow black base, and with blackish hairs on disc and at border. Squamulae pale yellowish, small, bare; halteres yellowish. Abdomen entirely reddish, even on venter, with only a narrow black stripe in the middle of the second and third segments; the pubescence is pale yellowish. Coxae and femora entirely yellowish, with a pale pubescence; front and hind tibiae darkened with blackish pubescence; tarsi black, those of the front pair with tactile hairs below. Wings proportionately long; cubital fork very long; discoidal cell narrow, with the small cross-vein on its basal third; first, second, and third posterior cell of about the same width at end, the fourth being distinctly narrower; anal cell shortly stalked. The veins are blackish, with yellowish base. The wing is yellowish hyaline, iridescent, with the terminal half distinctly darker, the cells sometimes with paler centre; stigma dark yellowish; a faint discoidal infuscation is present, but not forming a definite discal band.

6. *Atrichops monogramma* var. *agramma*, nov.

Exactly the same as the preceding species, but distinct by the complete absence of any black marking on the back of the mesonotum and on the abdomen.

Type ♀, one specimen from Barberton, 5th October 1919 (H. K. Munro). On the thorax there is no trace of median stripe and even of presutural side-spots, the pleurae have the same white shining vertical band, with a dark, not well-delimited spot on upper part of the mesopleura. Abdomen without middle basal stripe and other black markings. Legs the same, but with yellowish, less infuscated hind tibiae; front tarsi with numerous tactile hairs below. Wings similar, both in venation and colouring.

7. *Atrichops inaequalis*, sp. nov.

Perhaps only a variety of *A. monogramma*; but the male is very different from both, and it is described here separately, being evidently referable to one or to the other, more probably to the present species, on account of its having been captured in the same locality and at the same time.

Type ♀ and type ♂, a couple of specimens from Karkloof, Natal, 1915 (H. W. Bell-Marley).

♀. Length of body, 10 mm.; of wing, 9 mm. Head and its appendages exactly as described in *A. monogramma*; the deep black median band of the frons is broader, the fore half being shining white; the yellow face is densely clothed with white dust. Thorax, pleurae, and scutellum exactly as in *A. monogramma*; there is the same blackish, white-dusted spot on the upper part of the mesopleura, continued above the notopleural line as a presutural spot. The abdomen differs in having, besides the abbreviated basal black stripe, lateral black spots on the second and third segment; moreover, the two last segments are broadly black at the sides; the venter is shining black, with only the last segment reddish. Legs as in the preceding, but with the tibiae much less infuscate, and with the praetarsi distinctly pale at base. Wings as in preceding species, but with less infuscated terminal half, and with no clear loop into the centre of the same cells.

♂. Length of body, 10.5 mm.; of wing, 9 mm. Occiput entirely white dusted, with a deep black stripe at upper eyes-border, and with vertical black stripe from vertex to neck; hairs dark above, longer and white below. Vertical triangle narrow, elongate, black, grey before the ocelli, with some black hairs. Frontal triangle as long as the middle distance between vertex and antennae, shining white, quite bare. Eyes from a lateral view rather narrow, viewed from the front broadly oval; they are in contact as long as one-third

of the distance between antennae and vertex, and have the anterior middle areolets distinctly enlarged. Ground colour of face blackish, but it is densely white dusted, like the cheeks, which are much broader than in the female and likewise bare. Antennae, proboscis, and palpi as described in the female. Back of mesonotum reddish, rather shining, with long, erect, dark pubescence, and bristly hairs at sides; the median black stripe is as in the female, not overlapping the dorsocentral lines and not edged with whitish stripes, or with less distinct ones in the presutural part; the stripe is more linear, beginning, without being attenuated, just above the neck and ending, without being dilated, in front of the scutellum. The blackish, white-dusted presutural spot is as in the female. The pleurae are different in being completely blackish, white-dusted, only the propleura and the pteropleura being reddish; mesophragma shining black in the middle, yellowish on the sides. Scutellum shining reddish, narrowly black at base, with long black hairs. Squamulae yellowish hyaline, with yellow, bare margin; halteres yellowish. Abdomen shining yellowish on the three basal segments, more reddish on the last four; first segment with black subquadrate spot in the middle; second and third segment with blackish spot in middle and with a deep black stripe on each side; fourth to seventh segment with a darker black middle spot and with deep black lateral stripes; hairs rather long, whitish on the sides, dark in the middle; venter yellowish, unspotted in the three basal segments, reddish with middle dark spots on the others. Genitalia shining black above, reddish below, with black hairs above and with yellowish ones below. All the coxae yellowish, with pale hairs. Four anterior femora yellowish, with whitish hairs; hind femora broadly black towards the middle and there with dark hairs; front and middle tibiae darkened on terminal half, those of the front pair more deeply so; hind tibiae long, thick, almost entirely black and with black hairs; all the tarsi black, those of the middle pair with paler base; hind praetarsi thick and longer than the other joints taken together. Wings as described in the female, but less infusate on the terminal half; therefore the central band below the stigma is more distinct, chiefly at the bases of the discoidal and fourth posterior cells.

8. *Atrichops bivittata*, sp. nov.

Different from all the preceding species in the shape of the head, in the broader middle stripe of the back of the mesonotum, and in the

absence of the dark presutural spot; it is, moreover, of distinctly smaller size.

Type ♀, a single specimen from Bulwer, Natal, September 1916 (Greene); one female from Marico, Transvaal, 1918, with more yellowish face (H. K. Munro); moreover, in the Museum of Budapest there is another female specimen from New Hannover, Natal, 1st February 1913.

♀. Length of body, 8.5 mm.; of wing, 8 mm. Occiput entirely deep black, only dark grey dusted below at the sides; the hairs of the upper part are dark yellowish brown, those of the lower part are longer and whitish. Frons distinctly broader and shorter than in the females of the preceding species; it is deep black on the basal two-thirds and brownish red, white dusted on the apical third; there are a few short black hairs in the middle. Eyes more rounded, with the vertical diameter about as long as the horizontal one. Face shiny black, with faint white dust; side cheeks bare, white dusted, twice as broad as in the females of the preceding species. Antennae, palpi, and proboscis as in the preceding. Mesonotum reddish yellow, but on the back it is black, opaque, the median stripe being much dilated and extending beyond the dorsocentral lines, which are marked with a narrow whitish stripe; moreover, the central part of this broad black stripe is white dusted before the suture; the hairs are blackish in the middle of the back, yellowish on the sides; there is no trace of the blackish presutural spot of the preceding species. The pleurae are blackish, opaque, only the pro- and pteropleura being yellowish; the dark parts are clothed with grey dust, but the white shining vertical median band is wanting; the sparse hairs are pale. Squamulae and halteres as in the preceding species. Abdomen reddish, rather shining; the 3-4 basal segments with a black triangular spot at base, the second and third segment, moreover, with black lateral stripes; hairs pale yellowish at the sides, dark on the back; venter entirely yellowish, unspotted, and with whitish hairs. Legs with yellowish coxae and femora; front tibiae and tarsi black; middle tibiae broadly yellowish and their praetarsi pale; hind tibiae yellowish at base, hind tarsi entirely black; front tarsi elongate, with tactile hairs below. Wings as described in the preceding species, but without terminal infuscation, even the median band being very faintly indicated below the stigma and at the base of the discoidal and fourth posterior cells.

9. *Atrichops binominata*, Bequaert.

Psyche, xxviii, 1921, p. 6 (*Atherix*)=*longipes*, Loew, Wien. Ent. Monatschr., vii, 1863, p. 12 (*Atherix*), nec Bellardi, 1861.

Distinct from all the preceding species on account of the entirely black thorax and of the different pattern of the abdomen; in the form of head and in the smaller size it is more nearly allied to *A. bivittata* than to any other.

Loew has described the male from Bloemfontein. I have seen one female in the Museum of Budapest from New Hannover, Natal, 8th February 1913.

♀. Length of body, 8 mm.; of wing, 7.5 mm. Head and its appendages as in the preceding; occiput with whitish patches above and at sides; the white dusted part of frons is one-third of the whole length; face black, with faint white dust; cheeks rather broad, but less than in *bivittata*; the second antennal joint blackish above, the first only infuscated. Mesonotum entirely black, only the humeri below, the notopleural suture, and a narrow stripe above the rest of the wings being reddish; middle part of back grey dusted before the suture, but there are no distinct whitish dorsocentral stripes; pleurae whitish or grey dusted, but without vertical white shining band; hairs dark. Scutellum shining reddish, with black base; hairs pale; halteres yellowish. Abdomen reddish; first and second segments with a black median spot, the second, moreover, with black lateral stripes; third, fourth, and fifth segments with broad black basal bands; seventh segment with deep-black sides; venter yellowish, unspotted; the hairs are dark on the black parts and pale on the reddish parts. Legs with yellowish coxae and femora; front and hind tibiae and all the tarsi black; middle tibiae dark yellowish; front tarsi with tactile hairs below. Wings as in the preceding species, distinctly but faintly infuscate on terminal half; the median dark band is less distinct.

Gen. *ATHERIX*, Meigen, 1803.

In determining the species of the present genus one must take into consideration the great difference between the sexes of the same species. The South African species are not unlike the European ones: the first resembles *A. ibis*; the second in the female likewise resembles *A. ibis*, while in the male it is more like *A. marginata*; the third resembles *A. marginata* in both sexes; the fourth is an aberrant

form, which makes a passage to the following new genus. The third species is noteworthy by the widely separated eyes of the male; the second by the male being much darker than the female, precisely the contrary of what is to be seen in *A. ibis*, in which the female is darker than the male.

The species, which seem to be mostly mountain-dwellers, may be distinguished as follows :—

1. (6) Both branches of cubital fork of nearly equal length, ending symmetrically at wing-tip; discoidal cell sending three complete veinlets to hind margin of wing; pterostigma blackish; hind tibiae with well developed spurs; abdomen opaque.
2. (5) Wings with a rich design, consisting of fuscous and hyaline spots; abdomen with distinct yellow parts, at least on venter in the male; legs in part or entirely yellow; eyes of male very close.
3. (4) Wings brown, with three irregular bands of whitish hyaline spots; legs of male yellow; abdomen of male yellow, with basal black bands on all the segments *peringueyi*, sp. nov.
4. (3) Wings slightly infusate, with a short darker median band surrounded by irregular hyaline spots; legs and abdomen of male in greatest part black; legs and abdomen of female in greatest part yellow.
barnardi, sp. nov.
5. (2) Wings almost entirely hyaline, with a hardly distinct dark sub-stigmatal band, which is not surrounded by hyaline spots; abdomen in both sexes entirely black, even on venter; legs black; eyes of male as broadly distant as those of female *androgyna*, sp. nov.
6. (1) Upper branch of cubital fork shorter than the lower one and ending much before the wing-tip; lower veinlet from the discoidal cell reduced to a short stump; pterostigma very faintly infusate; hind tibiae with small spur; abdomen shining *incompleta*, sp. nov.

10. *Atherix peringueyi*, sp. nov.

An elegant species, the brightest coloured of all those here described, recalling the European *A. ibis*, but with different wing and abdominal pattern.

Type ♂, a single specimen from Stellenbosch, November 1887, collected by Dr. L. Peringuey, in whose honour this fine insect is named.

♂. Length of body, 12.5 mm.; of wing, 12 mm.; of wing-spread, 26 mm. Occiput densely clothed with opaque grey dust, with short darkish hairs above and with longer and abundant whitish ones below. Frons black, with opaque blackish-grey dust, and with long black erect hairs throughout the whole length; it is narrow, being about in the narrowest part as broad as the distance between the two

basal ocelli, being a trifle broader at root of antennae. Eyes depressed, narrow in lateral view, but nearly circular in front view; they are bare, with equally small areolets. Antennae inserted very low and broadly separated at base; they are short and small, entirely black, with all the three joints of about the same length; the third joint is rounded, with a basal arista; basal joints with black, bristly hairs above. Face very short and broad, densely grey dusted, bare; side cheeks as broad as the antennae, grey, clothed with long darkish hairs. Palpi and proboscis black, with long black hairs; the latter is thick, about as long as the former or only a little longer. Back of mesonotum black, opaque, clothed with long, erect, dark pubescence; on the sides, above the notopleural line, there is a broad grey stripe, extending from the humeri to the sides of scutellum; if the disc is striped or not, it is impossible to say, owing to the bad preservation of the single type. Pleurae densely grey dusted, opaque, with paler pubescence. Scutellum black, grey dusted on the disc, a little shining, with long pale hairs. Squamulae whitish, with yellow border which is pale haired; halteres with yellowish stalk and blackish knob. Abdomen conical, broad at base; first segment deep black, with reddish sides and a broad grey hind border; second, third, and fourth and fifth segments reddish yellow, with a broad deep-black basal band, which has in the middle a black prolongation reaching nearly to the hind border, which is grey dusted; the two last segments are reddish, with a black middle spot; genitalia reddish; hairs pale on reddish parts, black on dark parts; venter entirely yellowish grey, with a whitish hind border to the sternites and with rather long erect white hairs. Legs entirely yellowish, with infuscated last tarsal joints; coxae black, grey dusted; hairs long and pale; front tarsi elongated, longer than their tibiae, with no distinct tactile hairs. Wings with the same venation as in *A. ibis*, but with the cubital fork longer, its base being about above the middle of the discoidal cell. The wings are entirely brown, and there is no trace of the yellowish spot of *A. ibis* at the end of submarginal cell, just beyond the stigmatal spot; the three oblique bands of whitish hyaline spots are as follows: the first goes from the base of the marginal cell across the ends of second basal and anal cells to the base of the axillary lobe, diluted at ending; the second goes from the middle of the first submarginal cell across the base of the second submarginal, base of first posterior, middle of discoidal, and base of fourth posterior cell, to the middle of the fifth posterior cell; the third is the shortest of all and consists of four spots, two before the end of second sub-

marginal and first posterior cells and two in the middle of the third and fourth posterior cells, one in anal cell.

11. *Atherix barnardi*, sp. nov.

Distinct from the preceding by the much blacker male, and in both sexes by the much more reduced wing-pattern; the male recalls the European *A. marginata*, while the female is very different.

Type ♂, type ♀, and some additional specimens from Oudebosch, Caledon Div., 1500 ft., January 1919; another male from Zonder Ende Peak, 3600 ft., Cape, January 1919, all collected by K. H. Barnard, in whose honour the species is named.

Owing to the great differences, the sexes are described separately.

♂. Length of body, 7 mm.; of wing, 5.5 mm.; the specimen from Zonder Ende Peak measures 8 mm. in body and 6.5 in wing. The appendages and vestiture of the head are as described in the preceding species; but the eyes are distinctly more approximate, their distance at the narrowest point being equal to one ocellus; the frons is deep black, with a grey middle stripe between the antennae, prolonged on the middle of the frontal triangle. Thorax entirely opaque black, with dark pubescence; on the back are two equal, complete, narrow, whitish stripes along the dorsocentral lines; pleurae grey dusted, with sparse whitish hairs. Scutellum black, rather shining, with a broad red hind border, which is less distinct on the Zonder Ende Peak specimen; hairs erect, pale. Squamulae and halteres as in preceding. Abdomen narrower at base, cylindro-conical; clothed with long, erect, pale hairs. First segment grey, with black base; second, third, fourth, and fifth segments black, with a narrow, yellowish, grey-dusted hind border; sixth and seventh segments likewise, but less distinctly so; genitalia black. Venter black, with broad yellowish hind borders of all the segments; hairs whitish. Legs black, with the four anterior femora and tibiae more or less distinctly yellowish, while the hind femora are yellowish at both ends; front tarsi elongate, with more distinct tactile hairs. Wings with nervation and pattern about the same as in *A. marginata* (Verrall, British Flies, 1909, fig. 192, p. 290), but even in this case the cubital fork is longer.

♀ Length of body, 5.5–6.5 mm.; of wing, 5–5.5 mm. Head and its appendages as described in the male; the eyes are smaller, their vertical diameter being longer than the horizontal one; the frons is broad, about one-fourth of the head, with parallel sides, clothed on

its whole length with long, erect, black hairs; it is of a deep black colour, with a broad grey stripe along the middle; ocellar spot black; vertex grey. Back of mesonotum blackish grey, with two broad whitish stripes united together in front of the scutellum; humeri yellowish; a broad grey stripe above the notopleural suture. Pleurae yellowish, whitish dusted, more or less broadly blackish above and below. Scutellum reddish, with a narrow black base. Halteres yellowish, with the knob black at end. Abdomen broad, parallel-sided, flat, obtuse at end, with scattered and soft whitish hairs; it is entirely reddish yellow, even on venter; first segment with a small black central spot; second, third, fourth, and fifth segments with a broad, equal, black, basal band, which does not reach the sides, these, however, with a narrow black stripe on their deflexed borders; sixth and seventh segments with a much less distinct pattern; moreover, the segments from the second to the fifth have each a broad, white shining hind border. Legs with yellow coxae and femora, front and hind tibiae black, middle tibiae yellowish; all the tarsi black, those of the front pair with long tactile hairs below. Wings as in the male, with well-developed pattern.

12. *Atherix androgyna*, sp. nov.

Allied to the preceding, but with less patterned wings, broadly separated eyes in the male, and female much darker.

Type ♂, a single specimen from Gt. Winterhoek, Tulbagh, 4500 ft., November 1916 (R. M. Lightfoot); type ♀, and some additional specimens of same sex from French Hoek, 2500–3600 ft., December 1916 (K. H. Barnard).

♂. Length of body, 6 mm.; of wing, 5.5 mm. Head and its appendages as described for the male of the preceding species, but the eyes are about as widely separated as in the female of the preceding species; the parallel-sided frons is as broad as one-quarter of head, opaque black, with a narrow greyish median stripe on the anterior half, visible only in some lights. Thorax, pleurae, and scutellum entirely black; but the type being in bad condition it is impossible to see if there is a pattern or not. Halteres black, with yellowish stalk. Abdomen shaped as in the male of the preceding species, entirely black, even on venter; second, third, fourth, and fifth segments each with a rather broad whitish hind border; genitalia entirely black and black haired; they are apparently shaped as in the preceding species; hairs of back and venter short and scarce, mostly black, pale only at sides near the base. Coxae and legs entirely

black, even those of the middle pair; anterior tarsi without distinct tactile hairs below; hind tibiae with short spurs, only the internal one being rather developed. Wing-nervation as in the preceding species. The wing-pattern is very reduced, consisting only of a black, elongate stigmatal spot, and below this of an uncertain dark median band extended to the base of the discoidal and fourth posterior cell; there is also an elongate dark spot in the middle of the first basal cell; but the usual whitish hyaline patches of the preceding species are not distinguished, and therefore the middle dark band is less striking.

♀. Length of body, 5.5-6 mm.; of wing, 5-5.5 mm. Head and its appendages as in the male, but the frons distinctly broader, being as broad as the third of head, and thus distinctly broader than in the female of *A. barnardi*; it is black, grey dusted, with a distinct longitudinal median furrow, which is not present in the male. Thorax black, with reddish-brown humeri and grey-dusted pleurae; on the back there are two less distinct, narrow, distant, greyish stripes; the sparse pubescence is blackish on the back, whitish on the pleurae; scutellum and halteres as in the male. Abdomen shaped as in the female of *A. barnardi*, entirely opaque black, even on venter; all the segments have a greyish hind border, which is broader on the intermediate segments and is present even on venter; the hairs are very short and scarce, even at the sides, where they are pale. Legs entirely black, brownish in immature specimens; front tarsi with a few tactile hairs below; hind tibiae with small spurs, like those of the male. Wings as described for the male, but with even a fainter pattern, being sometimes hyaline with a dark stigmatal spot and with a less distinct trace of the middle band.

13. *Atherix incompleta*, sp. nov.

Very different from all the other species here described on account of its shining abdomen, of its very peculiar wing-venation, and of the very minute spurs of the hind tibiae.

Type ♀, a single badly preserved specimen from Paarl, Cape, October 1919 (Rev. G. Hawke).

The position of this strange insect is doubtful. It cannot be placed in *Symphoromyia*, notwithstanding the indistinct spurs of hind tibiae, owing to the closed anal cell. The possibility is not excluded that it may be the female of a species of the new genus following, or even the unknown female of the type-species itself; but I refrain to accept this last opinion on account of the very different

form of the cubital fork, which is different from that of all the other species here described.

♀. Length of body, 5 mm.; of wing, 5.5 mm. Head and its appendages as in the preceding female; the frons is of the same width, as broad as one-third of head, has a longitudinal middle furrow, and is opaque black, and seemingly pale dusted; the palpi are shorter and more obtuse than in the preceding. Thorax distinctly broader than in all the preceding species, being rather subquadrate; it is entirely dull black on the back, with reddish-brown humeral and postalar calli, and apparently without any pattern; the pubescence is long, soft, dense, erect, dark in colour, and almost bristly on the notopleural depression before the suture; the pleurae are dark grey dusted and clothed with long whitish hairs on meso- and hypo-pleura. Scutellum broader than long, black, rather shiny, clothed with hairs like those of back. Halteres black, with yellowish stalk. Abdomen broader than in all the preceding females, being as broad as the thorax; it is shiny black, with a narrow, reddish-brown hind border to the segments, but without any other distinct pattern; the hairs are long and soft, pale yellowish, chiefly at sides; venter entirely black. Legs short and thicker than in all the preceding species; they are partly broken off in the case of the type, but the coxae are black, the hind and middle femora are black, with dark reddish base; hind tibiae and hind tarsi black, the former with hardly visible spurs. Wings distinctly longer and broader than in all the preceding species; they are greyish hyaline and practically unspotted, even the stigmatal spot being faintly indicated. The venation is very peculiar, chiefly on account of the cubital fork, which has the upper branch short and ending before the wing-tip, while the lower branch is longer and ends precisely at the wing-tip (in the other species both the branches are equal in length and end symmetrically at both sides of wing-tip). The discoidal cell is acute outwardly, both its superior veinlets issuing practically from the same point and the third inferior veinlet being reduced to a very short stump; there are therefore only four posterior cells, the second of which is of triangular shape. Anal cell regularly closed and provided with a short stalk.

PACHYBATES, gen. nov.

The present new genus shows all the characters of *Atherix* s. str., with the following differences: 1. The body is shorter, broader, and more densely hairy; 2. the wings are long and broad, longer than

the body, and quite unspotted; 3. the eyes of the male are widely separated; 4. the abdomen of the male is short, with only five visible segments; 5. the genitalia of the male are of greater size and very differently shaped, being, moreover, pendulous instead of erect; 6. the legs are very thickened, all the femora and the hind coxae being greatly swollen in the male, in which the praetarsi of the hind pair bears moreover a strong terminal, spur-like expansion; 7. the spurs of hind tibiae are very small. Some of these characters are strictly sexual, but the general appearance of the fly is very peculiar. The wing-venation is exactly as in *Atherix*, the cubital fork being equally branched, both branches ending symmetrically with the wing-tip.

Type, *Atherix braunsi*, Bequaert, 1921.

14. *Pachybates braunsi*, Bequaert.

Psyche, xxviii, 1921, p. 1, fig. (*Atherix*.)

A very characteristic fly, looking not unlike some species of *Scatophaga* or of *Brachyopa*, with orange and softly haired abdomen, and with whitish halteres.

I have seen a male specimen of the typical series, caught at Stellenbosch (1st November 1915) by Dr. H. Brauns, and sent me by this collector. I have nothing to add to the excellent and long description of Dr. J. Bequaert. All the coxae are distinctly swollen, chiefly those of the hind pair; the spurs of the hind tibiae are much smaller than in all the other species, excepting *A. incompleta*.

The female is not yet described, but is recorded by Dr. Brauns as a much darker insect, agreeing in this with the above described *A. incompleta*.

Gen. ATHERIMORPHA, White.

Proc. R. Soc. of Tasmania, 1914, p. 41.

I place here provisionally in this Australian genus an interesting fly which agrees with it in the main characters, but shows some peculiarities. The possibility is not excluded that this fly may be a blood-sucking one, like some species of *Symphoromyia* or of *Spaniopsis*, which have, however, the hind tibiae with only one spur or without any distinct spurs at all. The generic characters of the South African species are as follows: Eyes widely separated in both the sexes, not bisected. Face broad and short, flat, not socketed. Antennae inserted very low, with the third joint gradually drawn out into a terminal, long, and thick style, which is longer in the male than in

the female. Proboscis rather projecting, strong, as long as the palpi. Back of mesonotum and scutellum beset with long, erect, bristle-like hairs which at sides before the sutures are almost like true bristles; pleurae nearly bare, with a few thin hairs on metapleura. Abdomen long, narrowly cylindrical, thinly pilose. Legs with rather thickened femora in the male; tibiae beset with distinct spicules, the anterior ones without spurs, while those of the two last pairs have two very robust ones; front tarsi devoid of tactile hairs below. Wings broad, with rounded alula; second vein long, longer than the elongated cubital fork; discoidal cell short, equal to the second and third posterior cells, with three complete veinlets issuing from its external border; five posterior cells, all broadly open outwardly, the fifth being at base not in contact with the discoidal cell; anal cell closed at wing-border, or narrowly open.

15. *Atherimorpha albipennis*, sp. nov.

A black, densely grey-dusted fly, with conspicuously white-haired abdomen and white wings.

Type ♂ and ♀, a single couple of specimens from Hottentots Holland Mts., 4000 ft., Caledon, Cape, 1916 (K. H. Barnard). I am not sure about the sexes, but I have considered as the male the specimen with longer antennae and with closed anal cell.

♂ ♀. Length of body and wings, 5-6.5 mm. Head entirely black; occiput densely covered with light grey dust, deeply concave in the middle and beset at sides with long, black, bristle-like hairs disposed in two to three irregular rows; near the eyes and below there are white hairs. Frons of about the same breadth in both sexes, only a little longer than broad; it is clothed with dense, dark grey dust and with scattered, erect, bristly, black hairs; ocellar tubercle of great size, rounded, prominent, with erect black hairs; above each antenna there is a prominent transverse keel. Face bare, grey dusted in the middle, whitish on the sides and on the broad but not prominent peristomialia. Head in front view much broader than high; eyes rounded, bare, with equally small areolets. Antennae inserted below the middle of the eyes, entirely black; the two basal joints are globular, with some black hairs above; third joint pyriform, about as long as the two first joints taken together, and with a thick style, which in the male is distinctly longer than the whole antenna, while in the female it is shorter than the antenna. Palpi and proboscis black, clothed with mostly black hairs, with several whitish ones intermingled. Thorax black, densely clothed with light grey

dust; on the back there are three dark stripes, that of the middle narrower than the others; the pleurae are lighter grey dusted, with several, irregular, darker spots. The hairs of the back are long, erect, black, bristle-like; they are disposed in one row, both the acrostical and the dorsocentral and the lighter lines between them being quite bare; beyond the dorsocentral lines the sides of the back are clothed with bristly hairs, with several true bristles above the notopleural line, before the suture; the pleurae are bare, with only a few thin hairs on the metapleura. Scutellum like the back of mesonotum, with erect, bristly hairs at hind border. Squamulae white and white-fringed; halteres very long, whitish, with a partly darkened knob. Abdomen elongate, cylindro-conical, with seven visible segments in the male and eight in the female; it is black, densely clothed with a light grey dust above and with a darker grey dust on venter; it is equally clothed with thin, dense, white hairs. Male genitalia small, with a grey lamella below and with reddish appendages above. Legs with black, grey-dusted coxae, dark reddish femora and tibiae, and the tarsi darkened towards the end; all the femora are distinctly thickened in the male; the tibiae have distinct dark spicules, disposed in three regular rows; the femora have very sparse shiny pale hairs; the last joints of the front tarsi are rather thick; the pulvilli and the broad, pad-like empodium are dirty yellowish. Wings very broad, rounded outwardly, entirely whitish, with black costa and dark veins which are yellowish at base; stigmatal spot elongate, not much infusate, occupying the middle of the marginal cell, between the end of the praefurca and the end of the first longitudinal vein. Second vein long, a little wavy; cubital fork long and narrow, longer than its stalk; small cross-vein near the base of the short and small discoidal cell; second posterior cell broad at base; ambient vein complete; axillary lobe rounded like the alula, the former being three times as long as the latter.

SUBFAMILY CHRYSOPILINAE.

Gen. CHRYSOPILUS, Macquart, 1826.

Dr. Speiser has given in 1914 (Deutsch. Entom. Zeitschr., p. 5) a key to the three known Ethiopian species of the present genus. From South Africa I have seen the following two:—

1. (2) Back of mesonotum yellowish; pterostigma rounded; second posterior cell with a long and acute base *testaceus*, Loew.
2. (1) Back of mesonotum blackish; pterostigma elongate; base of second posterior cell short *tuckeri*, sp. nov.

16. *Chrysopilus testaceus*, Loew, 1858.

Distinct by its much lighter coloration, and by the peculiar wings.

Originally described from Caffraria, but never found subsequently. I have seen specimens of both sexes from Barberton, Transvaal, April (H. K. Munro).

To the original description may be added: pterostigma rounded, being only a little longer than broad; it is sharply marked, ending before the end of the marginal cell, which has therefore a hyaline spot at end, and beginning abruptly inwardly. The second posterior cell is very acute at base, its inner point being only a little shorter than the length of the terminal cross-vein of the discoidal cell.

17. *Chrysopilus tuckeri*, sp. nov.

Closely allied to the preceding and perhaps only a dark form of it, but distinct by its greater size and by the different wings.

Type ♂, and an additional specimen of the same sex from Humansdorp, Coldstream, February 1921 (R. Tucker); named in honour of the collector.

♂. Length of body, 8 mm.; of wing, 7.5 mm. Eyes as in the preceding species, sharply bisected, and in contact in a line which is not longer than the prominent ocellar tubercle. Occiput entirely black, dark grey dusted, like the narrow and elongate frontal triangle; ocellar tubercle black and bare. Side cheeks black, grey dusted, bare; facial socket dark yellowish. Antennae with the two basal joints yellowish, the third and the arista blackish. Palpi yellowish, with white hairs; proboscis yellow, with pale yellowish flaps. The hairs of the lower part of head are whitish. Back of mesonotum blackish, with yellowish humeral and postalar calli; and with yellowish notopleural line; it seems that there is no trace of the golden tomentum found in the preceding species; pleurae yellowish grey, with darker parts; there are no hairs; scutellum yellowish, denuded in the specimens before me. Squamulae hyaline, with darker border; halteres pale yellowish, with darkened knob. Abdomen blackish, with yellowish basal segment and with a yellowish band at the hind border of the segments from the second to the fifth; last segments and genitalia quite black. All the hairs whitish; venter entirely yellowish. Coxae and legs pale yellowish, the tarsi darkened at end. Wings iridescent, hyaline, with a faint darkish tint; stigmatal spot brown, elongate, filling up the whole end of the marginal cell, which lacks the conspicuous hyaline terminal spot of the preceding; more-

over, there is inwardly a yellowish shade extending to the middle of the marginal cell. Veins blackish. Venation as in the preceding, with the difference that the acute base of the second posterior cell is shorter, being shorter than one-half of the terminal cross-vein of the discoidal cell; this last cell is therefore narrower and more regularly rectangular than in the preceding species; the basal cross-vein of the second posterior cell is less than one-half the length of the terminal cross-vein of the discoidal cell, while in *C. testaceus* these two cross-veins are of about the same length.

SUBFAMILY ARTHROTELINAE, nov.

This new subfamily is very like the Nearctic *Arthroceratinae*, showing also an antennal flagellum consisting of eight distinct joints, and the front tibiae without spurs, but it is distinguished by the elongate proboscis, a very rare character among the *Rhagionidae*. The bisected eyes of the male are as in the *Chrysopilinae*, from which the new subfamily is distinguished also by having two spurs on the hind tibiae.

ARTHROTELES, gen. nov.

This new genus is very like a *Symphoromyia* or a *Chrysopilus* in general appearance, but is at once distinguished by the annulated flagellum of the antennae. The form of the face is as in the North American genus *Arthroceras*, Williston, or in the related genus *Misgomyia*, Coquillett, 1908, but the long proboscis is very peculiar. In the Australian genus *Atherimorpha*, White, according to Mr. Hardy (Pap. and Proc. Roy. Soc. of Tasmania, 1919, p. 120, pl. xxvii, fig. 2), the antennal style shows some annulations at the base; but this is not the case with the South African species *A. albipennis*, which I have described above.

Head in front view broader than high, with the occiput concave in the middle and rather prominent at the sides. Ocellar tubercle prominent, with three ocelli of rather large size. Eyes bare, in the male meeting in a long line, bisected, the smaller areolets being limited to the lower third. Frontal triangle very small, much smaller than the ocellar tubercle and rather depressed. Face transverse, much broader than high; it is divided into three parts by two deep, diverging furrows running from the base of antennae to the oral margin; the middle part is socketed and bare; the side cheeks are also bare, but have very long hairs below. The antennae are inserted below the middle of the eyes and are longer than the antero-posterior

diameter of head, being carried horizontally; they resemble very much those of *Arthroceras* (see Williston, Man. N.A. Dipt., third edit., p. 161, fig. 19); the two basal joints are of about the same length, the second, however, being more swollen and globular, and both are clothed with rather long hairs; the third joint is smaller but longer than the second, and bears a seven-annulated style, thus resulting in a flagellum of eight quite distinct joints, which, as a whole, is about four times longer than the two basal joints together; the last segment of the flagellum is longer than any other and is about as long as the first (or true third antennal joint). Proboscis slender and acute, directed obliquely forwards, as long as head and thorax together: palpi long and very hairy, with the last joint greatly swollen and curved; they are about as long as the antennae, and much shorter than the proboscis. Thorax rounded, with the back of the mesonotum convex, clothed with long hairs, but without bristles or bristly hairs; pleurae almost bare. Scutellum with long hairs, but without bristly ones. Abdomen conical, with seven visible segments, the first and the second terminal segments being much shorter than each of the others; male genitalia erect. Legs normal; tibiae with three rows of less-developed spicules; front tibiae without spurs; middle and hind tibiae each with two strong spurs; empodium pulvilliform, as broad as the pulvilli. Wings with about the same venation as in *Arthroceras* (see Williston, Manual, p. 161, fig. 18). There are five posterior cells, all broadly open, the first, second, third, and fourth of about the same breadth at end, the fifth much broader, being about as broad as the third and the fourth together. Cubital fork narrow and long, longer than its own stalk; its lower branch ends below the wing-tip. Small cross-vein placed very near the base of the discoidal cell, which is parallel-sided, acute at base, and obtuse at end; anal cell closed at wing-border; axillary lobe broad, of nearly triangular shape; alula rounded and fringed with long hairs, like the axillary lobe.

Type, the following new species.

18. *Arthroteles bombyliiformis*, sp. nov.

An elongate, dark fly, looking very much like some species of *Bombyliidae*, but at once distinguished by the annulated flagellum of antennae, by the three broad, pad-like pulvilli, and by the five posterior cells of wings.

Type ♂, and an additional specimen of the same sex from the Cedarbergen, Clanwilliam Div., 4000–5000 ft., September 1923 (K. H. Barnard).

♂. Length of body, 5·5–6 mm. ; of wing, 4·8–5 mm. ; of proboscis, about 2 mm. Head entirely black, with dark grey dust on the occiput and with lighter grey dust on the face. The hairs of the occipital fringe and those of the ocellar tubercle are long and black ; the hairs of the underside of head are very long, dense, soft, and white. Antennae quite black, with black hairs on the basal joints. Palpi and proboscis black, the former with long black hairs, which are particularly long and dense on the swollen terminal joint, forming dense tufts inferiorly. Thorax opaque black, clothed with dark grey dust ; in the middle of back there are three black stripes, the middle one distinctly narrower, and all ending before reaching the scutellum ; the hairs of the back are very long and black, like those of scutellum ; pleurae with a few scattered black hairs, and with a fan-like row of white hairs on metapleura. Halteres black, with pale yellowish stalk ; squamulae whitish, with whitish hairs. Scutellum and mesophragma black, dark grey dusted. Abdomen entirely opaque black, with dark grey dust which is lighter on venter and along the hind border of the middle segments ; it is clothed with rather long white hairs ; genitalia black, pale hairy. Legs entirely black, opaque ; coxae and femora with long whitish hairs ; spurs and spicules blackish ; the three pulvilli whitish. Wings greyish hyaline, a little darker along the fore border towards the base ; stigmatal spot narrow and long, brownish, extending from the base of the praefurca to the end of the submarginal cell. Veins black and rather thick, only the extreme base a little yellowish.

Systematic Arrangement of the Genera and Species.

VERMILEONINAE.

Lampromyia, Macq.
sericea, Westw.
appendiculata, Bez.
argentata, Big.
brevirostris, Bez.

RHAGIONINAE.

Atrichops, Verr.
monogramma, Bez.
„ var. agramma, Bez.
inaequalis, Bez.
bivittata, Bez.
binominata, Beq.
Atherix, Meig.
peringueyi, Bez.

barnardi, Bez.
androgyna, Bez.
incompleta, Bez.
Pachybates, Bez.
braunsi, Beq.
Atherimorpha, White.
albipennis, Bez.

CHRYSOPILINAE.

Chrysopilus, Macq.
testaceus, Loew.
tuckeri, Bez.

ARTHROTELINAE.

Arthroteles, Bez.
bombyliiformis, Bez.

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